REMARKS

This response follows a second action non-final rejection of October 22, 2001. The petitioning fee associated with the extension of time in which to file this response is attached herewith.

The Applicant has reviewed the rejection under 35 U.S.C. § 112 second paragraph and has divided the claims into two groups. The first set of claims, original claims 1-8 as amended now define the position on the at least one rubber protection sheet as "disposed between the bead filler and the carcass ply surrounding it". The alternative language has been deleted. New claim 9 has been added which covers the embodiment of Fig. 3 where the invention employs at least two protection sheets disposed at different locations relative to the carcass ply. One is disposed between the bead filler and the carcass ply surrounding it such as sheet 11 and the second is disposed between the rubber reinforcing layer and the carcass ply nearest thereto, element 13.

The Applicant has drafted a second set of claims 10-18 which define the embodiment of Fig. 2 namely the position of the at least one rubber protection sheet disposed between the rubber reinforcing layer and the carcass ply nearest thereto.

In drafting these claims the Examiner's question concerning the antecedent basis of the phrase "rubber protection sheet" has been corrected.

Turning then to the prior art rejection, the Examiner has applied two new references in rejecting claims 1-6 and 8. The allowability of claim 7 is noted with appreciation. It is however believed that upon reexamination and reconsideration of the prior art in view of Applicant's claims the remaining claims should also now be allowed.

The Examiner cites JP '820 as relating to a pneumatic tire which, the Examiner concedes does not employ a rubber reinforcing layer arranged at an inner surface side of the innermost carcass ply. The Examiner also concedes that the reference does not describe the loss tangent of the rubber protection sheet, that is claim 7 or claim 16.

Not stated, it is clear that the Examiner also tacitly concedes that the '820 reference is not directed to run-flat technology. For that, the Examiner relies on Spragg and contends that it would have been obvious to have modified the primary reference to use a rubber-reinforcing layer at an inner surface of an inner most carcass ply. Specifically, the Examiner relies on the rubber-reinforcing layer 80 of Fig. 1 of Spragg which extends from a position near the bead core to a position near the end of the tread portion. The Examiner contends that it would have been obvious to use that technology in the '820 reference. This rejection is respectfully traversed.

As noted by the Examiner here and set forth in a first office action this invention is directed to a particular type of tire namely a pneumatic tire having run-flat capability. Run-flat tires have become and are recognized as a distinct class of tires within a tire technology. Just as motorcycle tires have achieved an art recognized distinctiveness because of the dynamic properties associated with two-wheel vehicles, likewise, run-flat tires are also considered to be unique and a distinct class within the art given the dynamic mode of use associated with those tires.

This invention thus uses at least one rubber protection sheet such as element 11 or 12 which is relatively soft and disposed between the bead filler rubber and the carcass ply surrounding it. The second embodiment can also place the rubber protection sheet, element 13,

also soft between the rubber reinforcing layer and the carcass ply nearest thereto. The third embodiment uses both first and second rubber protection sheets and in all cases they are located within a specific zone.

Not only is the '820 reference not a run-flat pneumatic tire as the Examiner recognizes but, it also describes technology not reasonably capable of modification into a run-flat configuration. The '820 reference shows the tire having a cushion rubber between the bead filler rubber and the main body of the carcass ply. This would be essentially the same as the rubber protection sheet defined by the Applicant because it is used as a cushion rubber and located between the rubber filler and the main body. However, it does not disclose the use of a rubber reinforcing layer which is required in a run-flat tire.

The Applicant calls to the attention of the Examiner the description of the tire in paragraph [0001] of the reference. There, the field of invention is stated as follows, "This invention relates to a pneumatic radial tire, in particular, to a heavy duty pneumatic radial tire for use in a so-called heavy vehicle such as a truck or a bus of not less than medium size, industrial vehicle, off-the-road vehicle or the like, and more particularly, to a pneumatic radial tire advantageously improving the durability of the bead portion and having a longer tire life without especially arranging additional reinforcing members at the bead portion of a zone ranging the bead portion to sidewall portion and without increasing the volume of a so-called rubber filler of the bead portion".

The Applicant emphasizes that this reference states specifically that a goal is to define a tire that does not use additional reinforcing members in the bead portion of the tire or in a zone

from the bead portion to the sidewall portion of the tire. The reference thus states unambiguously that the additional layer that the Examiner holds to be obvious would not in fact be used or in any way recommended. This is a positive and objective indicia that the holding of obviousness is not based on a complete understanding of the scope and content of the prior art. When the '820 reference tells the artisan not to add additional reinforcing members, such a caution would not only mitigate against but, compel that if modifications of the tire art to be effectuated they would be those which the reference itself leads away from by its own objective disclosure.

Stated differently, it is believed that the primary reference leads directly away from the combination the Examiner considers to be obvious. The particular modification which the Examiner concludes is mandated by Spragg et al., namely the use of an additional layer, in this case a rubber reinforcing layer is in fact the type of additional structure, not only in terms of an additional layer but also one located at the bead portion or a zone ranging from the bead portion to the sidewall portion which the primary reference affirmatively rules out. Thus, it is believed that there is no prima facie obviousness based on full consideration of the scope and content of the prior art.

Additionally, JP '820 is directed to improvement of tire durability and in particular the bead portion during running under normal inflation pressure. Clearly, the reference does not perceive or in any way suggest an improvement in the tire performance when it is running in a puncture state having an internal pressure of nearly zero. The result then is a completely different definition of the tire in the case of the primary reference when considered with the prior

art represented by the technology at issue here. That is, a tire of the type disclosed in the '820 reference utilizes inner pressure to support the load by the application of tension from the inner pressure to the carcass ply. In the case of a run-flat tire however the inner pressure becomes 0. The tire cannot support the load by pressure but yet, the tire still needs to be able to run and support the load. The result then is a side reinforcement type run-flat tire which adopts a construction disclosed here which supports the load by arranging the rubber reinforcing layer at particular locations in the sidewall.

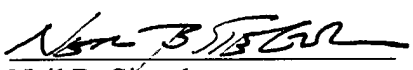
The artisan would clearly recognize the difference in the overall design of the two tires, one which supports the load by internal pressure and one which supports the load by the arrangement of rubber reinforcing elements.

This difference leads to a difference in the application of applied stress to the bead portion and the sidewall portions of the tires. In the JP '820 reference, the stress supplied to those layers is different and applied in more uniform manner by the application of internal pressure as opposed to a run-flat tire of this invention.

Spragg et al. as the Examiner points out does deal with a run-flat tire and uses a rubber reinforcing layer. However, the invention here improves run-flat durability by dispersing the shearing stress between the carcass ply and the bead filler in one embodiment where between the carcass ply and rubber reinforcing layer in another embodiment are between the two. This concept is not disclosed whatsoever in the '980 reference. Thus, when this run-flat technology tire is carefully considered, it falls well short of defining technology as represented by the claims here.

The Applicant thus respectfully contends that this invention as defined by claims 1-18 is distinguishable over the prior art. The allowability of the application is thus respectfully requested. Should the Examiner have any questions he is requested to contact the undersigned attorney of record at the local exchange listed below.

Respectfully submitted,



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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims are amended as follows:

1. (Twice Amended) A run-flat pneumatic tire comprising; a radial carcass extending between a pair of bead cores embedded in the respective bead portions to reinforce a pair of sidewall portions, a tread portion comprised of one or more rubberized cord plies, a belt arranged on an outer peripheral surface of the carcass to reinforce the tread portion, a bead filler rubber taperingly extending from a position just above the bead core toward an end of the tread portion, a rubber reinforcing layer arranged at an inner surface side of an innermost carcass ply from a position near to the bead core in the bead portion to a position near to the end of the tread portion and having substantially a crescent shape at section thereof, and at least one rubber protection sheet being relatively soft and disposed between the bead filler rubber and the carcass ply surrounding it, ~~and/or, disposed between the rubber reinforcing layer and the carcass ply nearest thereto and~~ within a zone extending inward from a position of a line segment in parallel to the rotating axial line of the tire passing through an outer end by the bead filler rubber in the radial direction of the tire.

3. (Twice Amended) A run-flat pneumatic tire according to claim 1, wherein in a radial section of a tire-rim assembly when the tire is mounted onto a recommended rim and

inflated under a pressure corresponding to 15% of a maximum air pressure, the at least one rubber protection sheet is existent over both sides of a straight line drawn from a curvature center of a flange of the recommended rim at an inclination angle 60° outwardly in a radial direction of the tire with respect to a line segment drawn from the curvature center in parallel to a rotating axial line of the tire toward the inside of the tire.

4. (Twice Amended) A run-flat pneumatic tire according to claim 1, wherein the at least one rubber protection sheet is existent between line segments in parallel to the rotating axial line of the tire respectively passing through an outer end of the bead filler rubber in the radial direction of the tire and an inner end of the rubber reinforcing layer in the radial direction of the tire.

5. (Twice Amended) A run-flat pneumatic tire according to claim 2, wherein when the at least one rubber protection sheet is disposed along the turnup portion of the carcass ply between the turnup portion and the bead filler rubber, a height of an outer end of the rubber protection sheet in the radial direction of the tire as measured from an outermost end of the bead core in the radial direction of the tire is not more than two times a height of an intersecting point between the straight line drawn from a curvature center of a flange of the recommended rim at an inclination angle of 60° outwardly in a radial direction of the tire with respect to a line segment drawn from a curvature center in parallel to a rotating axial line of the tire toward the inside of the tire and an outer surface of an outermost carcass ply as measured by the above same method.

6. (Twice Amended) A run-flat pneumatic tire according to claim 1, wherein the at least one rubber protection sheet has 50% modulus of 0.30-0.84 times that of the rubber reinforcing rubber.

7. (Twice Amended) A run-flat pneumatic tire according to claim 1, wherein the at least one rubber protection sheet has tan δ at 25°C of 0.04-0.11.

8. (Twice Amended) A run-flat pneumatic tire according to claim 1, wherein the at least one rubber protection sheet has a thickness of 0.4-4.0mm.

Claims 9-18 are added as new claims.

9. (New) A run-flat pneumatic tire according to claim 1 further comprising a second rubber protection sheet being relatively soft and disposed between the rubber reinforcing layer and the carcass ply nearest thereto.

10. (New) A run-flat pneumatic tire comprising; a radial carcass extending between a pair of bead cores embedded in the respective bead portions to reinforce a pair of sidewall portions, a tread portion comprised of one or more rubberized cord plies, a belt arranged on an

outer peripheral surface of the carcass to reinforce the tread portion, a bead filler rubber taperingly extending from a position just above the bead core toward an end of the tread portion, a rubber reinforcing layer arranged at an inner surface side of an innermost carcass ply from a position near to the bead core in the bead portion to a position near to the end of the tread portion and having substantially a crescent shape at section thereof, and at least one rubber protection sheet being relatively soft and disposed between the rubber reinforcing layer and the carcass ply nearest thereto and within a zone extending inward from a position of a line segment in parallel to the rotating axial line of the tire passing through an outer end by the bead filler rubber in the radial direction of the tire.

11. (New) A run-flat pneumatic tire according to claim 10, wherein at least one ply of the carcass is a turnup ply wound around the bead core from an inside of the tire toward an outside thereof, which consists of a toroidally extending main body and a turnup portion.

12. (New) A run-flat pneumatic tire according to claim 10, wherein in a radial section of a tire-rim assembly when the tire is mounted onto a recommended rim and inflated under a pressure corresponding to 15% of a maximum air pressure, the at least one rubber protection sheet is existent over both sides of a straight line drawn from a curvature center of a flange of the recommended rim at an inclination angle 60° outwardly in a radial direction of the tire with respect to a line segment drawn from the curvature center in parallel to a rotating axial line of the tire toward the inside of the tire.

13. (New) A run-flat pneumatic tire according to claim 10, wherein the at least one rubber protection sheet is existent between line segments in parallel to the rotating axial line of the tire respectively passing through an outer end of the bead filler rubber in the radial direction of the tire and an inner end of the rubber reinforcing layer in the radial direction of the tire.

14. (New) A run-flat pneumatic tire according to claim 11, wherein when the at least one rubber protection sheet is disposed along the turnup portion of the carcass ply between the turnup portion and the bead filler rubber, a height of an outer end of the rubber protection sheet in the radial direction of the tire as measured from an outermost end of the bead core in the radial direction of the tire is not more than two times a height of an intersecting point between the straight line drawn from a curvature center of a flange of the recommended rim at an inclination angle of 60° outwardly in a radial direction of the tire with respect to a line segment drawn from a curvature center in parallel to a rotating axial line of the tire toward the inside of the tire and an outer surface of an outermost carcass ply as measured by the above same method.

15. (New) A run-flat pneumatic tire according to claim 10, wherein the at least one rubber protection sheet has 50% modulus of 0.30-0.84 times that of the rubber reinforcing rubber.

16. (New) A run-flat pneumatic tire according to claim 10, wherein the at least on rubber protection sheet has tan δ at 25°C of 0.04-0.11.

17. (New) A run-flat pneumatic tire according to claim 10, wherein the at least one rubber protection sheet has a thickness of 0.4-4.0mm.

18. (New) A run-flat pneumatic tire according to claim 10, further comprising a second rubber protection sheet being relatively soft and disposed between the bead filler rubber and the carcass ply surrounding it.